

REMARKS

Claims 13 to 27 are all the claims pending in the application.

Claims 13-37 have been rejected under 35 U.S.C. § 102(b) as anticipated by the Go et al article entitled, "*Property Control of High Purity Titanium Dioxide by Vapor Phase Oxidation Process.*"

Applicants submit that the Go et al article does not anticipate the subject matter of the present claims and, accordingly, request withdrawal of this rejection.

The present invention as set forth in independent claim 13 is directed to a vapor phase process for producing a titanium oxide that comprises preliminarily heating each of a titanium halogenide-containing gas and a oxidative gas at a temperature of at least 600°C but less than 1,100°C before introducing the titanium halogenide-containing gas and the oxidative gas into a reactor, reacting the titanium halogenide-containing gas with the oxidative gas by introducing the titanium halogenide-containing gas and the oxidative gas into the reactor, to thereby allow reaction to proceed, with the temperature of the interior of the reactor being at least 800°C but less than 1,100°C, and maintaining a residence time of the titanium halogenide-containing gas and the oxidative gas in the reactor at temperature range of at least 800°C but less than 1100°C of 0.1 seconds or less.

Thus, claim 13 requires maintaining a residence time of the titanium halogenide-containing gas and the oxidative gas in the reactor at temperature range of at least 800°C but less than 1100°C of 0.1 seconds or less.

Independent claims 18 and 23 also recite maintaining a residence time of the titanium halogenide-containing gas and the oxidative gas in the reactor at temperature range of at least 800°C but less than 1100°C of 0.1 seconds or less.

Applicants submit that Go et al do not disclose the step of maintaining a residence time of the titanium halogenide-containing gas and the oxidative gas in the reactor at temperature range of at least 800°C but less than 1100°C of 0.1 seconds or less.

Go et al disclose that titanium tetrachloride vapor and an oxygen gas are individually preheated to 900 to 1100°C, and that the preheated oxygen gas and the preheated titanium tetrachloride gas react together in a reactor tube.

Go et al further disclose that the residence time in the reactor tube is as short as about 0.1 to 0.4 seconds. See page 1168, left column, lines 6-7.

Applicants submit that the disclosure of a range of 0.1 to 0.4 seconds in Go et al does not anticipate the range of 0.1 seconds or less as recited in the present claims. See *Atofina v. Great Lakes Chem. Corp.*, 441 F.3d 991 (Fed. Cir. 2006), where the Federal Circuit made clear that the endpoints of a disclosed range are not a specific disclosure of the endpoints, and that an endpoint is not a disclosure of a specific embodiment of the claimed range.

In *Atofina*, the Federal Circuit held that a prior art disclosure of a temperature range of 150° to 350°C that slightly overlapped a claimed temperature range was not a disclosure of the claimed range and does not constitute a specific disclosure of the end points of that range, that is, 150°C and 350°C. The disclosure of a range of 150° to 350°C was a disclosure only of that range, and not a specific temperature in that range, and the disclosure of a range is no more a

disclosure of the end points of the range than it is of each of the intermediate points.

Accordingly, the court held that the prior art did not disclose a specific embodiment of the claimed temperature range and did not anticipate the claimed range.

Similarly, in the present case, since Go et al only disclose a range having an endpoint that is the same as the endpoint set forth in the present claims, Go et al do not anticipate the present claims.

Further, if the residence time exceeds 0.1 second, anatase-to-rutile transformation or sintering of the particles proceeds, and the desired effect of the present invention cannot be obtained. Comparative Example 1 of the present application employed a residence time of 0.2 seconds, which is within the 0.1 to 0.4 range disclosed by Go et al, but did not achieve the desired effect of the present invention.

In view of the above, applicants submit that the Go et al article does not anticipate the subject matter of the present claims and, accordingly, request withdrawal of this rejection.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

RESPONSE UNDER 37 C.F.R. § 1.111
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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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